

Growing the Codes Greener

By Tim denHartog

Green is growing across the nation, taking root in both the industrial and residential markets. New building practices and technologies are emerging, focusing on conservation, sustainability and protecting the environment. Part of responsible and sustainable building requires developing code that supports these new ideas and practices, yet still promotes public health and safety.

One of the big issues in the ongoing *Uniform Plumbing Code* development cycle is the expanded use of gray water and reclaimed water. Cities and states are looking with apprehension at their water reserves – prolonged drought and population increases are draining their resources. The use of gray and reclaimed water is an opportunity to ease the demand on potable water and implement conservation practices.

Several proposals were submitted calling for changes to the code with regard to these two items. The Technical Committee felt the issue required further study and appointed a Gray Water and Reclaimed Water Task Group to research the proposals and provide recommendations. Below is a look at some of the changes being discussed.

Gray Water

Gray water (also spelled grey water), can be viewed as the “in-between” water – it is not clear potable water fit for drinking, and it’s not the black water typically from toilet waste. It gets its name because of the often-murky gray appearance it has.

The 2006 *UPC* defines gray water as untreated household waste water that has not come in contact with toilet waste. It includes water from bathtubs, showers, bathroom wash basins, clothes washers and laundry tubs. Excluded from this list is water from kitchen sinks or dishwashers.

Because the water is untreated, the *UPC* has limited gray water use for subsurface irrigation/disposal fields only. Above ground irrigation is prohibited because water droplets from sprinklers can evaporate and leave microorganisms in the air. Indoor use such as flushing toilets is also prohibited, as it fouls the tank.

Gray water goes down the same pipe as blackwater, further polluting it. It is estimated that more than 50 percent of household waste water is gray water. With a properly designed system, gray water for irrigation can be a significant offset to a household’s potable water usage.



Proposed Changes to Gray Water

Gray water use is not new; it has been included in the code since 1994. The changes proposed in this code development cycle seek to expand its use by removing the classification as limited to “household” waste water. Furthermore, it proposes removing the restrictions governing it to single residential units.

The changes would also include guidelines for calculating discharge for both residential and commercial use, and require that the systems be designed to distribute the estimated gray water on a daily basis (bacteria multiplies, and the water will become anaerobic and foul if stored too long).

Reclaimed Water

Reclaimed water (also called recycled water) is different from grey water in that it is treated wastewater. Treatment today is performed externally by a public utility and includes oxidation, clarification, coagulation, filtration and disinfection. The treated water is not to contain more than 23 coliform bacteria per 100 ml in any sample.

Use is currently limited to non-residential buildings to supply water closets, urinals and trap primers for floor drains and floor sinks.



Proposed Changes to Reclaimed Water

Reclaimed water may see significant change in two areas: definition and use.

The IAPMO gray water and reclaimed water task group proposed revisions to Item 219 of the Report on Proposals as follows: “Non potable water that meets, or as a result of treatment meets federal requirements for its intended uses. The level of treatment and the quality of reclaimed water shall be approved by the Authority Having Jurisdiction.”

The change would immensely broaden the definition. If adopted, it would allow the inclusion of rainwater and gray water treated onsite. It also allows flexibility in treatment depending on its intended use, with each jurisdiction setting the guidelines.

Prior use of reclaimed water systems was limited to fixtures in non-residential buildings. Item number 218 proposes a change: remove restrictions to allow it for residential use. The IAPMO Gray Water and Reclaimed Water Task Group reviewed the proposal and found no technical substantiation to prevent the safe use of reclaimed water in residential buildings. It pointed to the safe and successful use of reclaimed water in states such as California, Arizona, Texas and New Mexico.

With proper treatment, whether it is onsite or at another location, reclaimed water can be used for flushing toilets, irrigation, fountains and other approved functions, in both commercial and residential buildings. If these changes are approved, it could be a profound source for water conservation.

Safety

Important to the use of gray water and reclaimed water, and any water for that matter, is the system’s design. It is imperative to public health that the plumbing system performs properly and that all safety measures are in place. To ensure this, it is necessary that the system be designed by a person registered or licensed to perform plumbing work. The proposed changes in this code development cycle would add language to make this requirement clear and absolute.

The Benefit of Green Codes

Millions of gallons of safe, potable drinking water are wasted every day. They are flushed away, poured down the drain or used for irrigation. Gray and reclaimed water use stretches the effective supply of potable water. Toilets and irrigation account for much of residential water use — using the water collected from showers, bathroom sinks and laundry just makes sense.

The proposed changes are a step in allowing the new technology in water reuse systems to be utilized while maintaining public health and safety.

These recommendations will be passed along to the Technical Committee, which will act on them at its meeting May 5-7 in Denver. This meeting is open to the public and anyone in the audience is able to voice his or her position in an open forum. For more information on the TC Meetings and hotel reservation information, turn to page page 56 in this magazine.